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1. This kind of water wheel is propelled completely by water power. In the mountainous areas of Hunan and Kweichow where the water flows rapidly, such utilization of natural water power is very widespread. It is not found only in Miao areas. Sung Ying-hsing of the Ming period wrote in his Tien Kung Kai Wu: "The rapid water flowing underneath the wheel makes it rotate, forcing the water into tubes, one by one leading into another bamboo tube and flowing into the field. It never stops day or night; there is no worry for a hundred fields (see Vol. I, 'Nai Li /Grains/')." A kind of water mill (Illus. 31) used in the Miao area also utilizes natural water power.

The size of the water wheel depends upon the height of the terraced fields. By means of long and short bamboo tubes the water is conducted to near and distant fields. The terraced fields in the Miao area involve considerable labor. On a slope where there is a spring, earth is scooped out to make raised paths between fields, which act as dikes, going up in tiers, or stones are piled up to make embankments on both banks of a stream. These man-made terraced fields require a great deal of time and labor and are susceptible to drought. For they rise from the foot to the waist of the mountain, tier by tier, like a ladder, so that it is very easy for the water in the fields to leak away. But in the event of a shortage of rainfall, when the spring fed by mountain streams dries up, irrigation stops

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